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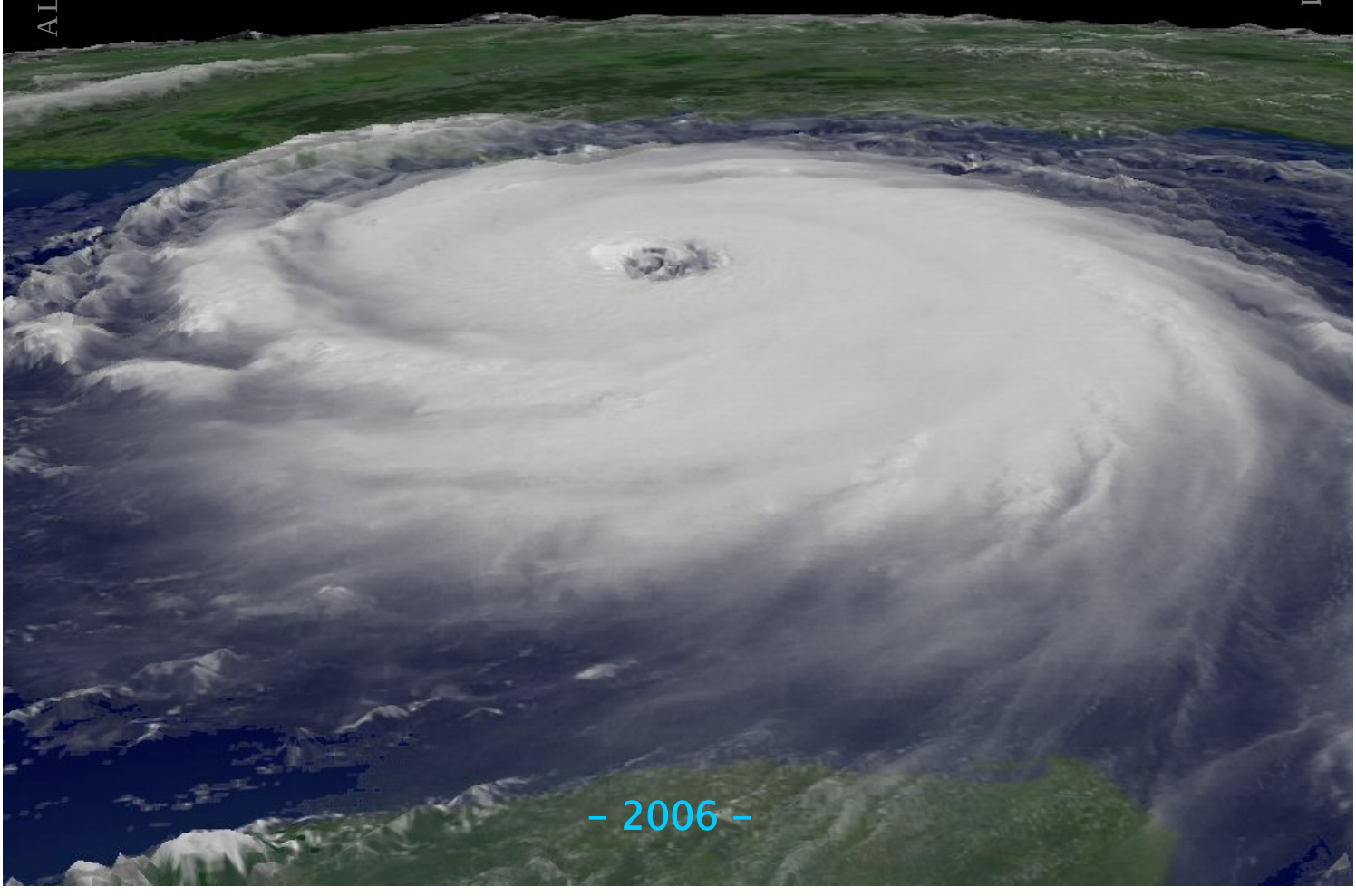
Rhode Island
Hurricane Preparedness Guide

– For Public Water Systems –

Rhode Island Department of Health



– 2006 –

HURRICANE PREPAREDNESS – 2006

With the memories and ongoing recovery from Katrina fresh in our minds, more attention than ever is being focused on hurricane response this year. New England is long overdue for a serious storm, and many feel that we may be hit with a major hurricane this year. With the abundance of informational resources available, Rhode Island's public water systems will be expected to provide a strong and effective response. Preparation is the first step.

Mutual Aid Agreements are a major trend in the industry and now would be a great time to consider them. Such agreements not only address breakdowns in coordination and resource availability, but also enhance local capabilities to respond to any threat. The EPA is pushing for the implementation of inter- and intra-state agreements and several professional associations have responded by drafting up guidance on the matter. "Utilities Helping Utilities" is a concept that has received widespread support and is a good start for systems interested in getting a jump-start on this.

The Office of Drinking Water Quality, as the state-designated primacy agency for emergencies involving drinking water, needs to maintain effective lines of communication with all systems that fall under its jurisdiction. Please assist our staff by providing them with up to date contact information and with any changes as they occur. Emergency Contact Update Forms are available by request or on our website. Remember that immediate response and action is required for any alerts received from our office. Failure to facilitate timely communication not only significantly hinders our statewide response efforts, but also may lead to misappropriation of limited assets in times of need.

Included in this booklet are a series of "Suggested Pre- and Post-Hurricane Activities" produced by the EPA. The items in ***bold italics*** may not apply to smaller systems. You may download the documents at:

http://www.epa.gov/safewater/hurricane/pre-hurricane.html
http://www.epa.gov/safewater/hurricane/post-hurricane.html

Remember to be prepared for secondary hazards such as Blackouts, Flooding, Thunderstorms, and Tornadoes as well.

We also encourage you to visit our website for a wealth of information on hurricanes and preparedness activities. The address is:

http://www.health.ri.gov/emergency/hurricanes/

By taking proactive measures we strengthen our public water systems against catastrophic events. You can help make this the best year ever in terms of disaster preparedness. We hope that you find this booklet helpful.

Suggested Pre-Hurricane Activities

General:

1. Identify and schedule emergency operations and cleanup crews. This could consist of heavy equipment and extra personnel to assist in clean-ups.
2. Adjust work schedules so that key staff members are onsite or can be reached to keep all services operational if the facility remains online or to shutdown and startup facilities if and when necessary.
3. Provide Local, State, and Federal emergency response agencies with current contact information for key personnel. For public water systems, be sure to line up contacts to request emergency water supply, if necessary.
4. Review your emergency response plan and ensure contacts are current.
5. Notify, ahead of time, and set up clear lines of communication with local police and fire department, in case of an injury or other emergencies. ***Request that local law enforcement check on any water staff that remain onsite at the water system.*** If communication channels are down with these sites, this check needs to continue on a routine basis until communication channels are reestablished.
6. Establish contacts to request emergency water supply, to include trucking in of purchased water from another potable water supply if necessary.
7. ***Make arrangements with the local power utility to be prepared to restore power to the water system as a priority customer.***
8. ***Pre-arrange to purchase materials and supplies and to borrow/lease heavy equipment needed to make repairs to the water system. This could include piping, valves, chemical feed-line tubing, and hydrants.***
9. Make arrangements to have materials and chemicals delivered to your location as soon as it is safe and you are ready for operation.
10. Establish which media you will use for customers to access information and press advisories. Prepare customers for possible boil water advisories:
    a: Have a "Boil Water Notice" prepared, including multilingual.
    b: Have emergency disinfection of drinking water procedures prepared.
    c: Have "Shelter-in-Place" guidelines ready in case of release of hazardous materials for the public that may need to remain indoors.
11. Stock up on first-aid supplies, batteries, flashlights, and cellular phones or other wireless communication devices. Check all normal and emergency communication equipment and charge or replace batteries.
12. Stock an adequate supply (one week) of non-perishable food and water for any essential persons that remain on site or are considered first responders to the water system.
13. Establish alternative transportation strategies for rotating in core employees to the facility if high water prevents travel. Personnel should bring a jump bag with them, which contains change of clothes, sleeping bag, flashlights, extra batteries, medications, and other essentials.
14. Make sure all essential personnel are trained to shut down and start up system in case of emergency. Cross-train staff in critical functions.
15. Notify the RI Emergency Management Agency and the RI HEALTH Office of Drinking Water Quality (DWQ) if a plant is taken off-line or you are unable to operate the water system. Be sure to obtain RI EMA and RI HEALTH – DWQ locations before any potentially known disasters occur.
16. ***Review distribution maps to ensure they are up-to-date with isolation valves properly identified. Extra copies may be needed for staff working in the field.***

Suggested Pre-Hurricane Activities

Grounds and Common Areas:

17. Inspect water system source and treatment facility for security concerns.
18. Check backup pumps, controls, lights, and generators.
19. In addition to regular preventive maintenance, all systems should check backup chemical feeders and all pumps and motors. Verify that spare pumps, motors and other necessary spare parts are available.
20. Check manual controls and oil levels.
21. Fuel and service vehicles. Stock service vehicles with equipment and supplies, and move service vehicles to high ground or temporarily locate them out of the threat of damage.
22. Have sufficient supplies of sand bags available and sandbag the entrances, the area around critical equipment, and other critical areas.
23. Ensure that emergency electrical generators are not located in flood-prone areas of the facility. Obtain extra fuel for generators. Ensure adequate number of generators for water systems that require generators for wastewater and water pumping operations.
24. Board up all windows and doors to prevent wind damage.
25. Shut down exposed pipes at waterway crossings to prevent loss or contamination of potable water if the pipes break. Isolate/valve-off portions of the water system that appear to be more prone to damage. This should be performed as a last measure since service may still be needed immediately prior to the storm event.

Administration and Laboratory Buildings:

26. Secure important records in a well-protected location, including plant operations manual and water system mapping.
27. Remove all sensitive laboratory equipment and portable electrical equipment from the flood zone, where possible.
28. Protect computers from potential damage.
29. Check bacteriological sampling materials -- be prepared for increased or special monitoring after the storm.
30. Remove or store furnishings in a safe place, when practical.
31. Disconnect electrical power to the water system building, workshops, or offices if possible.

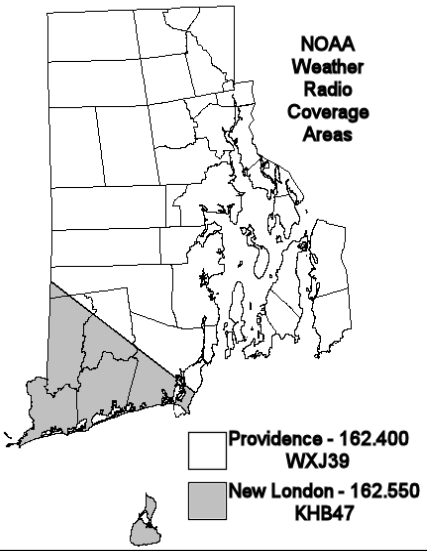
Treatment Plant and Pumping Stations:

32. Run diagnostic tests on Supervisory Control and Data Acquisition (SCADA) and control systems.
33. All pump stations should be in a well-drained area and be designed to remain in operation during flood events. If not, the pumps should be shut down and protected from electrical damage if they should become submerged. After any major storm event, check raw water intakes to minimize any debris or other materials that could enter. Ensure operators and staff are familiar with manual operations within the system should SCADA become inoperable.

Suggested Pre-Hurricane Activities

Treatment Plant and Pumping Stations cont.:

34. Any wells that become submerged must be disinfected prior to returning to service. Check with RI HEALTH – DWQ for additional requirements prior to lifting any boil water notices.
35. Check that all chemical bulk storage tanks are properly labeled to include chlorine cylinders and chemical mix tanks. This will help in identification should these items be washed or wind-blown away.
36. Be sure all dry chemicals are stored off the floor in a dry room that is protected against flooding and water from floors, walls and ceilings.
37. Check chemical inventory. A storm event could cause a greater demand for disinfectant to address broken waterlines and increases in turbidity, so more disinfectant and coagulant chemicals may be required. Verify that the current supply of calcium hypochlorite (if used) is adequate for this potential increased use.
38. Fill all storage tanks with water to prevent floating or falling from wind forces. This will also help in maintaining pressure throughout your distribution system.
39. ***Remove or move chemicals to a safe area. If chemicals are removed from an underground or above ground tank, fill the tank with water, if possible, to prevent floating.***
40. ***Remove fuel from underground storage tanks to prevent contamination and loss of the fuel. If possible move above ground fuel storage tanks to a safe, high area. Fuel will be needed for emergency and plant vehicles until new supplies arrive. Prepare for a one-week supply, if possible.***
41. Remove electrical motors, where possible. If not, wrap the motors in plastic and seal as tight as possible, in order to protect the motor from silt, mud, and dirt. Any electrical motors that are submerged, should be cleaned and dried prior to start up to prevent damage.
42. Remove shop tools and electrical hand tools from water system facilities.
43. Monitor tank levels. Fill elevated and ground storage tanks to full capacity. Storage tanks should be valved off from the distribution system immediately prior to the storm event to prevent loss of water during the storm.



NOAA WEATHER RADIO

▫ *NWR is an "all-hazards" public warning system, broadcasting forecasts, warnings, and emergency information 24 hours a day directly to the public, as directed by the National Response Plan.*

▫ *Messages include Natural Disasters, Technological Accidents, AMBER alerts, and terrorist attacks.*

Suggested Post-Hurricane Activities

General:

1. Line up and schedule emergency operations and cleanup crews.
2. Keep State and Federal Agencies apprised of location and telephone numbers of the emergency operating center or command post for the utility.
3. For public water systems, be sure to line up contacts to request emergency water supply, if necessary.
4. Consult with RI HEALTH – DWQ for public notifications (i.e., boil water, do not drink).
5. Notify customers and media where to access information and advisories.
6. Arrange for food and water for the crews.
7. Maintain clear lines of communication with local authorities, such as police and fire in case of an injury or other emergency.
8. Make arrangements with the local power utility to restore power as a primary customer.
9. Make arrangements with local companies to purchase materials and supplies and to borrow/lease heavy equipment needed to make repairs to the plant.
10. Confirm with suppliers that materials and chemicals can be delivered to the plant as soon as it is safe and units are repaired and ready for operation.
11. Plan for appropriate disposition of personal protection equipment (PPE) and other equipment.

Grounds and Common Areas:

12. If possible, re-supply inventory of emergency repair equipment and supplies (i.e., sand and sandbags, hand shovels, power equipment, fuel, batteries, flashlights, portable radio, first aid kits, etc.).
13. Keep service vehicles stocked with equipment and supplies.
14. Keep all vehicles and emergency generators fueled.
15. Keep service vehicles on high ground (above expected flood crest).
16. Maintain communications equipment and charge or replace batteries (i.e., two-way radios, cell phones, walkie-talkies, pagers, etc.).
17. Sandbag critical areas.
18. Coordinate debris removal.
19. ***Shut down exposed pipes at river crossings to prevent loss or contamination of potable water if the pipes break.***

Administration and Laboratory Buildings

20. Keep portable electrical equipment and small motors from the flood zone.
21. Protect all sensitive laboratory equipment from the flood zone.
22. Keep or store computers in a safe area.
23. Keep or store all important records in a safe area.
24. Keep vital records such blueprints, wiring diagrams, etc. in the emergency operations center or command post until normal operations resume.
25. If electrical power has been disconnected, make arrangements with the local power company to restore as a primary customer.

Suggested Post-Hurricane Activities

Treatment Plant and Pumping Stations:

26. Once floodwaters recede, work with utilities to restore power.
27. Keep chemicals in a safe area.
28. Sample appropriate system elements (storage tanks, filters, sediment basins, solids handling) to determine if residual contamination exists.
29. Inspect electrical motors for damage caused by silt, mud, and dirt getting into the windings. Replace storm-damaged electrical motors.
30. Submerged motors should be washed with clean water and dried, and in most cases restored to service.
31. Inventory all shop tools and electrical hand tools in the emergency operations center or command post.
32. For drinking water systems, if possible continue to maintain elevated storage at full capacity as appropriate.
33. Monitor chlorine residuals and system pressure as soon as you can safely gain access to the system and its control facilities.

Phone Numbers

24-hour numbers in bold.

RI HEALTH (DWQ) – (401) 222-6867 / **272-5952**

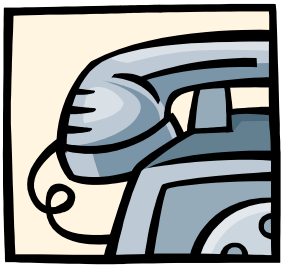
RI EMA – (401) 946-9996

RI State Police – (401) 444-1000

EPA Region I – (800) 424-8802

RI National Guard – (401) 742-5782

Public Utilities and Carriers – (401) 941-4500



Internet Resources

RI HEALTH http://www.health.ri.gov/emergency/hurricanes/watersystems.php

FEMA http://www.fema.gov/hazard/hurricane/

RI EMA http://www.riema.ri.gov/hazards/hurricane.php

NOAA http://hurricanes.noaa.gov

NWR REGIONAL FORECAST http://www.erh.noaa.gov/box/